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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,000	12/29/2000	Sadao Hirae	P/1596-51	9450

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EXAMINER

WINTER, GENTLE E

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/751,000	Applicant(s) HIRAE ET AL.	
	Examiner Winter E Gentle	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12,25-28 and 33-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12,25-28 and 33-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>062204</u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendments & Remarks

1. Claims 9-12 and 25-28 were rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,364,980 to Tomita "Tomita". Applicant argues that Tomita fails to disclose a UV emitting means that includes a reflector for emitting UV light onto the substrate from a position above the substrate and a controller that controls the rotating of the support means as well as the supplying of the cleaning solution.
2. Applicants' Remarks are persuasive with respect to the reflector for emitting UV light to the to the substrate. The element is missing; therefore, the anticipation rejection is properly withdrawn. As to the controller, the same is present in the reference; the power is turned on and off. See "...irradiation of UV rays after the termination of the spin washing." Since the UV is turned on after the spin washing, the washing must be turned off. Similarly, the UV must be shut off before the spin washing commences.
3. Applicant has correctly noted that the cited thesis has a publication date after the application date. It is noted that the thesis is used to show inherency, (that is, a scientific truth) and the thesis cites a secondary reference, which is the portion of the thesis that is relied on, the secondary reference *Chapman* is from 1930 and shows the ozone chemistry.
4. Claims 9, 11, 17, 25, and 27 were rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,464,480 to Matthews. Claim 17 is cancelled. Applicant's recitation that the UV source is above the wafer distinguishes the claims from the Matthews system and the rejection is therefore withdrawn.

5. Claims 10 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Matthews, as discussed above, in view of United States Patent No. 6,403,498 to Matsuo et al. The anticipation rejection using Matthews is been withdrawn and by extension so is the Obviousness rejection using that reference.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,078,832 to Tanaka, "Tanaka" in view of See United States Patent No. 5,843,527 to Sanada et al "Sanada". Tanaka discloses a wafer treating apparatus (see e.g. patented claim 1), a support rotatable by a motor for supporting and spinning a substrate (see element 62 "M" in figure 3 and relevant associated text). Tanaka additionally teaches a cleaning solution supply having a nozzle capable of performing in the manner claimed (element 59 of figure 3 and relevant associated text). The recited future intended use of "for supplying a cleaning solution" lacks the positive recitation required for the element to be given patentable weight. Tanaka further discloses a UV emitter positioned above said support (see element 36 of figure 3 and relevant associated text). It is noted that the wafer traverses from area 36 to area 38,

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however the claim does not require the ability to *simultaneously* emit UV light and apply solution. This limitation is not read into the claim.

8. Each and every limitation of claims 33-37 is identically disclosed in Tanaka, as set forth above, except Tanaka fails to explicitly disclose the controller.

9. Tanaka teaches the claimed invention except for the controller. Sanada teaches that it is known to use a controller to automate processes (column 7, line 33 *et seq.*). It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the controller, as taught by Sanada. The modification facilitates the effective coating the entire surface of the substrate with liquid. See Sanada at Column 7, line 33 *et seq.*

10. The artisan would have motivated to make the claimed combination in an effort to reduce production costs while increasing product homogeneity and reproducibility.

11. Claims 9-12, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,364,980 to Tomita "Tomita" in view of Sanada and further in view of United States Patent No. 5,078,832 to Tanaka, "Tanaka".

12. Claims 9-12 and 25-28 recite a substrate treating apparatus. Structurally the same is disclosed in Tomita at column 1, line 61 *et seq.* Tomita teaches a spin washing step via a spin

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washer, wherein a “washing solution is sprayed onto the substrate held on a rotary block, the washing liquid is perpetually scattered under the centrifugal force”.

13. Tomita does not explicitly teach the controller. Sanada teaches that it is known to use a controller to automate processes (column 7, line 33 *et seq.*). It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the controller, as taught by Sanada. The modification facilitates the effective coating the entire surface of the substrate with liquid. See Sanada at Column 7, line 33 *et seq.*

14. The artisan would have motivated to make the claimed combination in an effort to reduce production costs while increasing product homogeneity and reproducibility.

15. Each and every limitation of claims 9-12, 25-28, is identically disclosed in the combination of Tomita and Sanada, as set forth above, except the aggregated references fail to explicitly disclose a UV reflector and the specific wavelength. Tanaka discloses the reflector in Figure 3, above the UV lights 48. The claimed reflector is disclosed in the context of a spin washer in Tanaka.

16. The artisan would have been motivated to include a reflector with the UV radiation source of Tomita to maximize the amount of radiation that is directed to the wafer surface. As to the wavelength, Tanaka also discloses a low pressure Hg bulb with a wavelength overlapping the

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claimed range, namely Tanaka discloses 184.9-253.7 nm. Absent a showing of criticality of the wavelength, the disclosed wavelength is considered to read on the claimed wavelength.

17. Claims 9-12, 25-28, and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 4,161,356 to Giffin et al. "Giffin" in view Sanada and further in view of Tanaka. Giffin discloses, *inter alia* in figure 6 and relevant associated text the limitations of the claims, except that Giffin fails to explicitly disclose a reflector, a controller, and the specific wavelengths of UV light, although it is noted that "ultraviolet " light is disclosed.

18. Tanaka discloses the reflector in Figure 3, above the UV lights 48. The claimed reflector is disclosed in the context of a spin washer in Tanaka. The artisan would have been motivated to include a reflector to maximize the amount of radiation that is directed to the wafer surface. Such an improvement allows for optimal delivery of UV radiation to an intended surface. Tanaka also discloses a low pressure Hg bulb with a wavelength overlapping that claimed, namely Tanaka discloses 184.9-253.7 nm. Absent a showing of criticality of the wavelength, the disclosed wavelength is considered to read on the claimed wavelength.

19. Giffin and Tanaka fail to teach a controller, Sanada teaches a controller at column 7, line 33 *et seq.* and teaches and that it is known to use a controller to automate processes (column 7, line 33 *et seq.*). It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the controller, as taught by Sanada. The modification facilitates the

effective coating the entire surface of the substrate with liquid. See Sanada at Column 7, line 33 *et seq.*

20. The artisan would have motivated to make the claimed combination in an effort to reduce production costs while increasing product homogeneity and reproducibility.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

22. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Winter E Gentle whose telephone number is (571) 272 1310. The examiner can normally be reached on Monday through Friday.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Barr can be reached on 571 272 1300. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Winter E Gentle
Examiner
Art Unit 1746

July 7, 2004

MICHAEL BARR
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'Michael Barr', with a long horizontal flourish extending to the right.